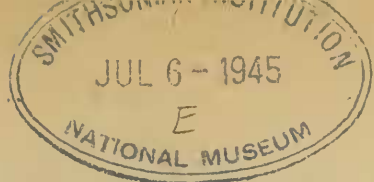


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PROCEEDINGS
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THE TAXONOMIC STATUS OF SOME CHIPMUNKS
OF THE GENUS EUTAMIAS IN SOUTHWESTERN
UTAH.

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When Howell published his "Revision of the American Chipmunks" (1929, U. S. Dept. Agric. N. Amer. Fauna, No. 52:1-53) he assigned specimens in winter pelage from the Pine Valley Mountains and some in summer pelage from the "Parawan" Mountains of Southwestern Utah to the race *Eutamias quadrivittatus inyoensis*. He had only summer pelage of *Eutamias adsitus* from the Beaver Mountains for comparison. Burt (1931, Jour. Mammal. 12:298-301) later named the race *E. q. nevadensis* from the Sheep Mountains of Southern Nevada.

A series of both summer and winter pelage of *E. adsitus* topotypes and of similar Pine Valley Mountain material as well as summer skins from Duck Creek on the Markagunt Plateau (the "Parawan" Mountains of Howell) have been collected by the writer since the summer of 1939. This material sheds new light upon the probable relationship of *Eutamias* populations of Southwestern Utah. I wish to thank Dr. S. B. Benson of the California Museum of Vertebrate Zoology and Dr. H. H. T. Jackson of the U. S. Fish and Wildlife Service for the use of comparative material. Color terms capitalized are as in Ridgway (1912, Color Standards and Color Nomenclature).

When adult chipmunks from Pine Valley, Washington County, Utah, are compared with adults in similar pelage of topotypes of *inyoensis*, *nevadensis*, and *adsitus*, using characters mentioned by Howell (*op. cit.*:85) and Burt (*op. cit.*:299), the following may be noted:

1. *General color of upperparts*: Material from Pine Valley is very little darker than *inyoensis* topotypes in summer pelage, but winter specimens are more pallid for some (as #1937 Hardy coll.) are nearly indistinguishable from *nevadensis* topotypes. In summer pelage, some specimens are paler than *adsitus*.
2. *Median pair of light stripes*: The amount of tawinness mixed with the

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light stripes is greater in Pine Valley summer material than in *inyoensis*, but the winter pelages show no important difference. In 5 of 13 winter specimens from Pine Valley, these light stripes are a lighter gray than the rump as in *nevadensis*. When compared with *adsitus*, there is no appreciable difference in winter, but in summer most have stripes less mixed with tawny.

3. *Outer pair of dark stripes*: In summer pelage, the outer dark stripes in Pine Valley material is much mixed with tawny as in *inyoensis*. Compared with summer *adsitus*, these stripes are less blackish except for #1550 from Pine Valley in which they are as dark as in most *adsitus* and except for #1712 from the Beaver Mountains in which the stripes have much Tawny admixture. In winter the stripes are not as dark as in *adsitus* topotypes.

4. *Short external stripe*: There was a short dark stripe external to the posterior part of the outer light stripes in 5 of 15 *adsitus* topotypes. It was absent in the *inyoensis* and *nevadensis* topotypes. In Pine Valley specimens it was faintly suggested in 9 of 24. In Duck Creek material it was faintly suggested in 2 and present in 3 of a total of 9.

5. *Grayish head*: In summer, Pine Valley material is the same as *inyoensis* topotypes in quality and amount of gray color of the head, but in winter the top of the head is a clearer gray than in either *adsitus* or *inyoensis*, being like *nevadensis*.

6. *Postauricular patches*: About the same size as in *inyoensis* except they are somewhat smaller in a few Pine Valley specimens, being more like *adsitus* in these individuals.

7. *Amount of tawny in dorsum of tail*: At all seasons, the tail is less Tawny than in *inyoensis* and has about the same amount of black and Tawny as *adsitus*.

8. *Color of ventral surface of tail*: The undersurface of the tail (discounting edgings) is uniformly Tawny in 17 topotypes of *inyoensis*. Topotypes of *nevadensis*: Cinnamon Buff, 5. Topotypes of *adsitus*: Tawny, 9; Cinnamon Buff, 2; intermediate between Tawny and Cinnamon Buff, 4 (includes 3 immature). Pine Valley specimens: Tawny, 11; Cinnamon Buff, 4; intermediate, 18 (includes 16 juvenile). Duck Creek specimens: Tawny, 8; Cinnamon Buff, 1.

9. *Color of edging of tail*: Pine Valley animals have the edging Tilleul Buff in 15 specimens while it is intermediate between this shade and Tawny in 18 (includes 16 juvenile). In 17 topotypes of *inyoensis*, the tail edging is Tawny. In 5 *nevadensis* it is Tilleul Buff which looks almost grayish against the dark background. In 12 *adsitus* topotypes, it is Tilleul Buff.

10. *Size of ears*: There is no difference in size of ears between Pine Valley animals and *adsitus* topotypes when fresh specimens are measured in the flesh.

11. *Facial markings*: In Pine Valley material, facial markings are prominent in most individuals, but in #1937 and #1765 they are less distinct, including the almost invisible submalar, as in *nevadensis*.

12. *Color of feet*: The feet are a "lighter clearer gray" as in *nevadensis* in 5 out of 13 winter specimens from Pine Valley.

13. *Interorbital width of skull*: The interorbital width is greater than in *inyoensis* in Pine Valley material measured, being like *nevadensis* and *adsitus*.

Specimens from Duck Creek:

When specimens from Duck Creek are compared, in addition to the characters noted above, they are seen to be almost like topotypes of *adsitus* except for the darker tail with darker and more nearly Tawny edgings, which, however, are not as dark as in *inyoensis*. The outer pair of dark stripes are less Tawny and more nearly black as in *adsitus*. The dark buffy edging of the tail may indicate relationship to the buffy-edge tailed *E. q. hopiensis* or *E. q. quadrivittatus* found farther east instead of to the western *inyoensis*. Howell stated that animals from the Henry Mountains show affinities with typical *quadrivittatus*.

Conclusions:

In view of these variations, it is believed that *Eutamias* from the Markagunt Plateau and the Pine Valley Mountains, while showing affinities to *inyoensis*, represent intergrades between *nevadensis* and *adsitus*, being closer to the latter. Because of these intergrades, *adsitus* should be regarded as conspecific with *nevadensis* and *inyoensis*. They are considered at present as races of *quadrivittatus* because of Howell's statement that there are intergrading characters in the Henry Mountains population of Southeastern Utah. Although material from this range has not been examined, it is unlikely that the Henry Mountains population can longer be considered as *inyoensis*, hence the name *Eutamias quadrivittatus inyoensis* should be deleted from the list of mammals occurring in Utah. The name *Eutamias quadrivittatus adsitus* should be used for the chipmunks of the Beaver Mountains, the Markagunt Plateau, and the Pine Valley Mountains although the animals from the last two areas are intergrades.

Specimens examined:

In addition to 17 topotypes of *inyoensis* and 5 topotypes of *nevadensis* the following 57 specimens of *Eutamias quadrivittatus adsitus*: UTAH, BEAVER COUNTY, Brigg's Meadows and adjacent areas in the Beaver Mountains, 15. KANE COUNTY, Duck Creek, 9. WASHINGTON COUNTY, at various points in the Pine Valley Mountains (6,500 to 10,000 feet altitude), 33.